S7 File. PRISMA 2009 checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

S1 File. Search strategy for Ovid Medline

#	Searches	Results	Type
1	mental fatigue.mp. or Mental Fatigue/	2064	Advanced
2	((mental or cognitive) adj fatigue).tw.	1191	Advanced
3	fatigability.mp.	2122	Advanced
4	time on task.mp.	555	Advanced
5	mental exhaustion.mp.	106	Advanced
6	1 or 2 or 3 or 4 or 5	4951	Advanced
7	multiple sclerosis.mp. or Multiple Sclerosis/	76134	Advanced
8	traumatic brain injury.mp. or Brain Injuries, Traumatic/	32086	Advanced
9	stroke.mp. or STROKE/	261031	Advanced
10	parkinson disease.mp. or Parkinson Disease/	68219	Advanced
11	nervous system.mp. or Nervous System/	467290	Advanced
12	7 or 8 or 9 or 10 or 11	871320	Advanced
13	6 or 12	550	Advanced
14	treatment.mp.	4429717	Advanced
15	intervention.mp.	540513	Advanced
16	14 or 15	4763175	Advanced
17	13 and 16	139	Advanced
18	limit 17 to yr="1980 –Current"	133	Advanced

S2 File. Search strategy for PsycInfo

#	Searches	Results	Type
1	mental fatigue.mp.	687	Advanced
2	((mental or cognitive) adj fatigue).tw.	834	Advanced
3	fatigability.mp.	395	Advanced
4	time on task.mp. or Time On Task/	1888	Advanced
5	mental exhaustion.mp.	89	Advanced
6	1 or 2 or 3 or 4 or 5	3154	Advanced
7	multiple sclerosis.mp. or Multiple Sclerosis/	15263	Advanced
8	traumatic brain injury.mp. or Traumatic Brain Injury/	19813	Advanced
9	stroke.mp.	31569	Advanced
10	Parkinson's Disease/ or parkinson disease.mp.	22561	Advanced
11	nervous system.mp. or Nervous System/	77351	Advanced
12	7 or 8 or 9 or 10 or 11	157660	Advanced
13	6 or 12	232	Advanced
14	treatment.mp. or TREATMENT/	632562	Advanced
15	intervention.mp. or INTERVENTION/	247854	Advanced
16	14 or 15	803358	Advanced
17	13 and 16	54	Advanced
18	limit 17 to yr="1980 –Current"	53	Advanced

S3 File. Search strategy for EMBASE

#	Searches	Results	Type
1	mental fatigue.mp.	1423	Advanced
2	((mental or cognitive) adj fatigue).tw.	1754	Advanced
3	fatigability.mp.	3317	Advanced
4	time on task.mp.	670	Advanced
5	mental exhaustion.mp.	191	Advanced
6	1 or 2 or 3 or 4 or 5	5926	Advanced
7	multiple sclerosis.mp. or multiple sclerosis/	133019	Advanced
8	traumatic brain injury.mp. or traumatic brain injury/	57679	Advanced
9	stroke.mp.	403038	Advanced
10	parkinson disease.mp. or Parkinson Disease/	144498	Advanced
11	nervous system.mp. or nervous system/	988012	Advanced
12	7 or 8 or 9 or 10 or 11	1642218	Advanced
13	6 or 12	922	Advanced
14	treatment.mp.	6623577	Advanced
15	intervention.mp	814760	Advanced
16	14 or 15	7118194	Advanced
17	13 and 16	259	Advanced
18	limit 17 to yr="1980 –Current"	253	Advanced

S4 File. Search strategy for Cochrane Library

#	Searches	Results	Type
1	mental fatigue.mp. or Mental Fatigue/	294	Advanced
2	((mental or cognitive) adj fatigue).tw.	265	Advanced
3	fatigability.mp.	168	Advanced
4	time on task.mp.	637	Advanced
5	mental exhaustion.mp.	7	Advanced
6	1 or 2 or 3 or 4 or 5	1139	Advanced
7	multiple sclerosis.mp. or Multiple Sclerosis/	7479	Advanced
8	traumatic brain injury.mp. or Brain Injuries/	3245	Advanced
9	stroke.mp. or Stroke/	41343	Advanced
10	parkinson disease.mp. or Parkinson Disease/	6047	Advanced
11	nervous system.mp. or Nervous System/	16467	Advanced
12	7 or 8 or 9 or 10 or 11	72580	Advanced
13	6 or 12	188	Advanced
14	treatment.mp.	567880	Advanced
15	intervention.mp.	156415	Advanced
16	14 or 15	651548	Advanced
17	13 and 16	91	Advanced
18	limit 17 to yr="1980 –Current"	91	Advanced

S5 File. Modified Cochrane Data Extraction Template

Cognitive fatigue interventions in neurological disease: A systematic review

Cochrane Public Health Group Data Extraction and Assessment Template

Study ID:	**Report ID :**	Date form completed:
Review Author ID:	First author:	Year of study:
Citation:		

1. General Information

Publication type	Journal Article	Abstract	Other (specify:)_____
Country of study:			
Language of study:			
Published in peer-reviewed journal?	Yes	No	

2. Study Eligibility

Study Characteristics			**Page/ Figure #**
Type of study	Randomised Controlled Trial (RCT) Case Controlled Studies (CCS) Case Reports/Series		
	Does the study design meet the criteria for inclusion? Yes: No: **Exclude** Unclear		
	Description about why the study does/does not meet criteria:		
Participants	Describe the participants included (i.e. type of nervous disease/disorder/dysfunction):		
	Are the participants between the ages of 18 & 65 years old? Yes No Unclear		
	Do the participants meet the criteria for inclusion?	Yes No: **Exclude** Unclear	

S5 File. Modified Cochrane Data Extraction Template

Types of intervention	Focus of the intervention?		
	Does the intervention meet the criteria for inclusion?	Yes No: **Exclude** Unclear	
Types of outcome measures	List outcomes:		
	Does the study objectively evaluate cognitive fatigue?	Yes No: **Exclude** Unclear	
	Is cognitive fatigue the primary, secondary, or tertiary outcome?	1º 2º 3º	

Summary of Assessment for Inclusion

Include in review?	**Exclude from review?**
Independently assessed, and then compared? Yes No	Differences resolved? Yes No
Request further details? Yes No	Contact details of authors:
Notes:	

DO NOT PROCEED IF PAPER EXCLUDED FROM REVIEW

S5 File. Modified Cochrane Data Extraction Template

3. Study details

Study intention	**Descriptions as stated in the report/paper**	**Page/ Figure #**
Aim of intervention	*What was the problem that this intervention was designed to address?*	
Aim of study	*What was the study designed to assess? Are these clearly stated?*	
Study setting	*Was the study conducted in a hospital, rehabilitation center, etc.?*	
Total study duration	*How long did the study last, if information available?*	

Methods	**Descriptions as stated in the report/paper**	**Page/ Figure #**
Method of recruitment of participants: *(i.e. clinic visits, word of mouth, etc.)*		
Type of nervous system disease/disorder/dysfunction:		
Method of diagnosis: *(i.e. neurologist, self-report, etc.)*		
Stage and/or severity of disease, if available: *(i.e. mild, moderate, Stage 1, Stage 2, etc.)*		
Type(s) of intervention (Pharmacological, Procedural, or Behavioural)		
Total number of intervention groups (including control)		
Was a sample size calculation performed? *(the power is reported under Results)*		
What was the unit of randomisation? *(ex. allocation by individuals or cluster/groups)*		
Statistical methods used *(i.e. correlations,*		

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ANOVAs, regression, etc.		
Methods - Outcome Measures	**Descriptions as stated in the report/paper**	**Page/ Figure #**
Was cognitive fatigue objectively measured?	Yes No How:	
Was cognitive fatigue subjectively measured?	Yes No How:	
Was cognition assessed?	Yes No How:	
Was mood evaluated?	Yes No How:	
Was quality of life evaluated?	Yes No How:	
Was sleep quality objectively evaluated?	Yes No How:	
Was sleep quality subjectively evaluated?	Yes No How:	
Was further information sought concerning the study methods?	Yes No How:	
Additional Notes:		

S5 File. Modified Cochrane Data Extraction Template

Results

Participants	**Include information for each group (i.e. intervention and controls) under study**	**Page/Figure #**
What percentage of selected individuals agreed to participate?		
What percentage of patients completed the study?		
Total number randomised:		
Number allocated to each intervention group		
For cluster trials, number of clusters, number of people per cluster:		
Where there any significant baseline imbalances?	Yes No Unclear Details:	
Number of withdrawals and exclusions for each intervention group:	Reasons:	
Have any attempts been made to impute missing data?		
Age (median, mean and range if possible)		
Sex (# and/or %)		
Race/Ethnicity		
Besides the principle nervous system diagnosis, are there any co-morbidities?		
Educational level, if available:		

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Socioeconomic status, if available:		
Language of participants:		

Intervention Group 1

Paste intervention chart for each arm of the intervention below

Group name:		**Page/ Figure #**
Details of intervention or control condition, if available		
Setting		
Theoretical rationale for intervention		
Delivery method *(e.g. stages, sequential, simultaneous, timing, frequency, duration, intensity, etc.*		
Duration of sessions		
Intervention provider *(e.g.rehabilitation therapist, etc.)*		
Co-interventions		
Time course of intervention		

S5 File. Modified Cochrane Data Extraction Template

Duration of follow-up		
Was sustainability discussed by the authors?		
Economic variables *(i.e costs of the intervention, etc.)*		
Subgroups?		
Control/comparison *(i.e. what the control or comparison group received)*		

Outcomes

Question	**Outcome 1**	**Page/ Figure #**
Outcome definition:		
Time points measured		
Time points reported		
Unit of measurement *(if relevant)*		
For scales – upper and lower limits and indicate whether high or low score is good		

S5 File. Modified Cochrane Data Extraction Template

How is the measure applied? *(ex. telephone/mail survey, in person by trained assessor, etc.)*		
How is the outcome reported? *(ex. subjective vs. objective)*		
Is this outcome/tool validated?		
Is it a reliable outcome measure?		
Is there adequate power for this outcome?		

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Results (*Copy and paste the appropriate table for each outcome and subgroup at each timepoint)*

Dichotomous outcome

page/fig

Comparison			
Outcome			
Subgroup			
Timepoint			
Results	**Intervention**	**Comparison**	
	No. participants	No. participants	
No. of missing participants and reasons			
Any other results reported?			
Analysed results			

Continuous outcome

page/fig

Comparison							
Outcome							
Subgroup							
Timepoint							
Post-intervention or change from baseline?							
Results	**Intervention**			**Comparison**			
	Mean	SD	No. participants	Mean	SD	No. participants	
No. missing participants and reasons							
Any other results reported?							
Analysed results							

S5 File. Modified Cochrane Data Extraction Template

Other relevant information

Were outcomes relating to harms/unintended effects/adverse events of the intervention described?	
Potential for author conflict:	
Key conclusions of the study authors:	
Could the inclusion of this study potentially bias the generalisability of the review?	
References to other relevant studies	
Additional notes by review authors	
Correspondence required for further study information (from whom, what and when)	

S6 File. Cochrane Risk of Bias Assessment

Domain	Review authors' judgement*	Description	Page/ Figure #
Was the allocation sequence adequately generated?	**Yes / No / Unclear**	***Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups.***	
Was allocation adequately concealed?	**Yes / No / Unclear**	***Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen in advance of, or during, enrolment.***	
Were baseline outcome measurements similar?	**Yes/No/Unclear**	***Note whether baseline outcome measurements were reported and whether there were any important differences between groups. If there were important differences between groups, note whether appropriate adjusted analysis was performed to account for this.***	
Were baseline characteristics similar?	**Yes/No/Unclear**	***Note whether baseline characteristics were reported and whether there were any important differences between groups.***	
Were incomplete outcome data adequately addressed? ***Assessments should be made for each main outcome (or class of outcomes).***	**Yes / No / Unclear**	***Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomized participants), reasons for attrition/exclusions where reported, and any re-inclusions in analyses performed by the review authors.***	
Was knowledge of the allocated intervention adequately prevented during the study? ***Separate assessments should be made for relevant groups of people involved in the study i.e participants, outcome assessors, investigators, data***	**Yes / No / Unclear**	***Describe all measures used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective, or whether blinding was appropriate.*** • Participants – yes, no, unclear *[record supporting statement from study].* • Investigators – yes, no, unclear *[record supporting statement from study].* • Outcomes assessors – yes, no, unclear *[record supporting statement from study].* Data assessors – yes, no, unclear *[record supporting statement from study].*	

assessors etc.			
Are reports of the study free of suggestion of selective outcome reporting? ***Assessments should be made for each main outcome (or class of outcomes).***	**Yes / No / Unclear**	***State how the possibility of selective outcome reporting was examined by the review authors, and what was found.***	
Other sources of bias	**Yes / No / Unclear**	***State any important concerns about bias not addressed in the other domains in the tool.***	

* Note: For each section above 'Yes' indicates a 'low risk of bias'; 'No' indicates a 'high risk of bias'; 'Unclear' indicates an 'uncertain risk of bias'. When entering the data into RevMan, the options to choose from will be 'Low', 'High' and 'Unclear'